(No Model.)

K. McLENNAN.

TANK HEATER.

No. 418,744. Patented Jan. 7, 1890.

Fig. 1.

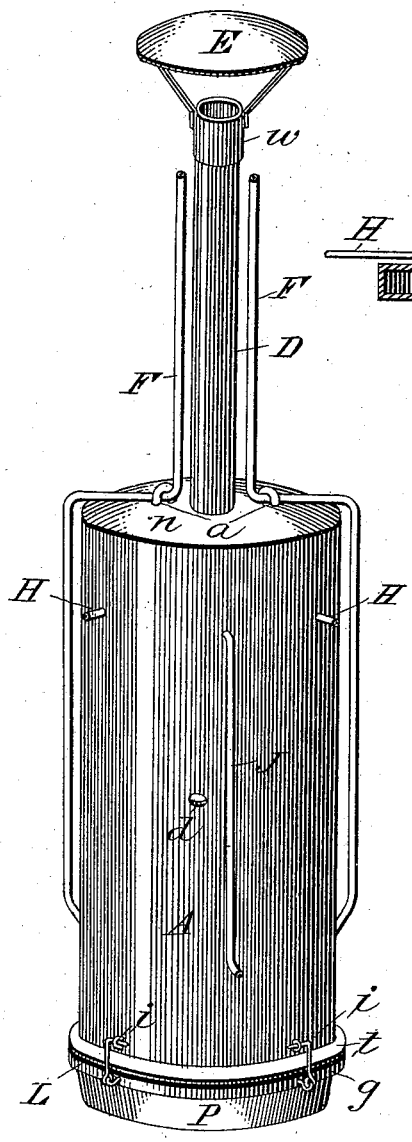


Fig. 2.

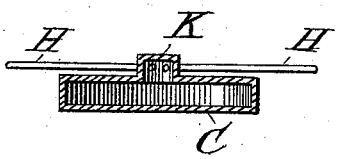
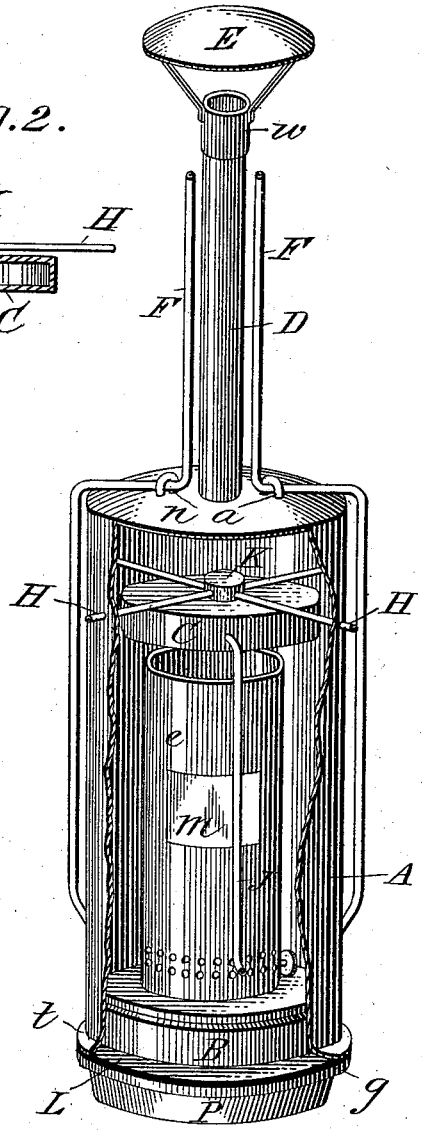


Fig. 3.



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UNITED STATES PATENT OFFICE.

KENNETH McLENNAN, OF RED OAK, IOWA.

TANK-HEATER.

SPECIFICATION forming part of Letters Patent No. 418,744, dated January 7, 1890.

Application filed July 2, 1889. Serial No. 316,361. (No model.)

To all whom it may concern:

Be it known that I, KENNETH McLENNAN, a citizen of the United States, residing at the city of Red Oak, in the county of Montgomery and State of Iowa, have invented a new and useful Tank-Heater, of which the following is a specification.

My invention relates to improvements in tank-heaters; and the objects of my improvements are to provide a tank-heater adapted to be immersed in the water of tanks and reservoirs, and which will prevent the water contained therein from freezing in the coldest weather, and which will keep the water during the winter at a suitable temperature to be drank by cattle and other animals. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the tank-heater. Fig. 2 is a perspective view of the tank-heater, having a portion of its case broken away, so as to show the inside of the heater. Fig. 3 is a detailed vertical sectional view taken on line *x x*, Fig. 2, of the reservoir of the heater.

Similar letters refer to similar parts throughout the several views.

In the accompanying drawings, A designates the case of the tank-heater, which is open at its bottom and closed at its top by means of the cover *n*, and which is provided at its base with the outwardly-extending circular flange *t*.

B is a lamp provided at its base with the circular flange *g*, the outer edge of which projects outward flush with the outer edge of the flange *t*.

L is a rubber disk or packing that is located between the flanges *t* and *g*.

P is a weight that is secured to the bottom of the lamp, and is employed to hold the tank-heater down in the water of the tank. The metallic lamp-chimney *e* has an aperture *m*, which is covered with glass.

D is a tube or flue, the lower end of which passes snugly through an aperture in the top or cover *n* of the case A and opens into the heater.

F F are bent tubes employed to supply the lamp with air, the lower ends of which are bent and pass snugly through apertures in the case A and open into the heater. They are secured to the cover *n* by means of the loops *a*.

C is the circular-shaped reservoir of the tank-heater, which is closed upon all sides and has the diameter of its upper portion reduced, forming the hollow upwardly-extending projection K. The reservoir C is made of smaller diameter than the case A and is held in a proper position above the lamp-chimney *e* by means of the four tubes H, the inner ends of which pass snugly through the sides of the projection K and open into the upper reduced portion of the reservoir C, and their outer ends pass snugly through apertures in the case A and project beyond the case.

I is a bent tube, which opens at its upper end into the reservoir C. It extends outward from the reservoir C, and passes snugly through the case A. Thence it extends downward upon the outside of the case A nearly to the base of the heater. One or more of these tubes can be used.

E is a hood, which is secured to the top of the flue D by means of the sleeve *w*. This hood is employed to keep the upper ends of the tubes F F and D free from snow and ice.

G are hooks, which are hinged at their lower ends to the flange *g* of the lamp, and which engage at their upper hooked ends with the perforated lugs *i*, which are secured to the case A. Several of these hooks can be used to secure the lamp to the case A. By disengaging the hooks G from the lugs *i* the lamp can be withdrawn from the case A and filled and trimmed.

The rubber disk L makes a water-tight joint between the flanges *t* and *g*. The aperture *d* is tightly closed by a glass cover, and when the lamp is burning the light is reflected through the aperture, so that in the night-time a person can determine whether or not the lamp is burning without withdrawing it from the case A.

The tank-heater should be immersed in the water which it is desired to heat such a depth that the case A will be below and the upper ends of the tubes F F and flue D above the surface of the water. When the tank-heater is immersed in the water, the reservoir C fills with water, which the burning lamp heats and expands so that it flows outward through the tubes H, and at the same time the water

flows into the reservoir C through the tube I. Thus the entire water of the tank circulates through the reservoir C and becomes warm.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The herein-described tank-heater, consisting of the case A, provided with the aperture *d*, having a transparent covering, the reservoir C, located within the case, the flue D, the air-tubes F, the lower ends of which open into the case and which extend upward outside of the case and are bent in such a manner as to extend upward along the flue, so that the hood E will reflect the heat that escapes through the flue onto the tops of the air-tubes and prevent them from being stopped with snow and ice, the hood E, secured to the top of the flue, the tube I, which opens into the reservoir and extends downward outside of the case, the tubes H, the inner ends of which open into the reservoir, the lamp located within the case under the reservoir, and the weight secured to the base of the lamp, all combined substantially as described.

KENNETH McLENNAN.

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